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We claim:

1. A bus controller connectable to a data communication bus, the bus controller comprising:

5 a memory circuit configured to store a plurality of messages for transmission; and  
arbitration logic associated with the memory circuit and configured to  
prioritize messages of the plurality of messages based on a bitwise  
comparison of the messages of the messages prior to transmission of  
10 any message of the plurality of messages.

15 2. The bus controller of claim 1 wherein the arbitration logic is further configured to compare respective bits of two or more messages and determine a message priority based on the comparing.

20 3. The bus controller of claim 1 further comprising:  
a transmission circuit configured to transmit the prioritized messages on the data communication bus.

25 4. The bus controller of claim 3 wherein the transmission circuit is configured to transmit a prioritized message so long as the prioritized message has a higher priority than any other message transmitted on the data communication bus.

5. The bus controller of claim 4 further comprising a receive circuit configured to detect data state of bits of other messages transmitted on the data communication bus.

6. A Controller Area Network (CAN) bus controller comprising:  
a plurality of transmit registers, each register configured to store a  
respective message for transmission from the CAN bus controller;  
arbitration logic configured to select a respective message for first  
transmission; and  
a transmission control circuit configured to transmit the selected respective  
message on a CAN bus.

7. The CAN bus controller of claim 1 wherein the transmission control  
circuit is further configured to transmit on the CAN bus bits of the selected  
respective message until transmission of another message of higher priority is  
detected.

8. A method for controlling message transmission from a Controller  
Area Network (CAN) bus controller to a CAN bus, the method comprising:  
comparing a plurality of messages for transmission;  
determining a priority for transmission of the messages for transmission;  
and  
transmitting the messages according to the priority.

9. The method of claim 8 wherein determining the priority for  
transmission comprises determining the priority based on content of the messages  
for transmission.

10. The method of claim 8 wherein determining the priority for  
transmission comprises:  
performing a bitwise comparison of each message; and  
assigning priority based on results of the bitwise comparison.

11. The method of claim 8 wherein determining the priority for  
transmission comprises:

comparing each bit of a predetermined subset of bits of a first message for  
transmission with each bit of a matching predetermined subset of  
bits for a second message for transmission; and  
selecting a first message for transmission based on the comparison.

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12. The method of claim 11 further comprising:  
repeating the comparison between each or the first message and the second  
message and remaining messages to be transmitted; and  
ordering the messages to be transmitted based on the comparison.

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13. A communication controller comprising:  
a memory circuit;  
a processor operable in response to data and instructions stored in the  
memory circuit;  
15 a first communication circuit under control of the processor for  
communicating messages between the communication controller  
and a first remote device on a first data communication bus  
according to a first data communication standard, the first  
communication circuit including  
20 a plurality of transmit registers, each transmit register configured to  
store a respective message for transmission from the  
communication controller,  
arbitration logic configured to select a respective message for first  
transmission based on a bit-by-bit comparison of the  
25 plurality of messages, and  
a transmission control circuit configured to transmit the selected  
respective messages; and  
a second communication circuit under control of the processor for  
communicating between the communication controller and a second  
30 remote device on a second data communication bus according to a

second data communication standard which is different from the first data communication standard.

14. The communication controller of claim 13 wherein the transmission control circuit is configured to format transmitted messages according to the Controller Area Network (CAN) standard.